GL07319_1

TO G. M. Millar

From: W. L. Niemi

Subject: ~~[redacted]~~ RRGE-1 Discharge Rate

It became apparent, while analyzing data from the Nov. 29 to Dec. 1, 1978, RRGP-4AB production test, that RRGE-1 is not maintained constant ~~[redacted]~~ (±3) as specified in previous communications. Interference data is difficult if not impossible to interpret without constant discharge from RRGE-1. It is essential that RRGE-1 discharge be maintained constant during the upcoming long-term (20 day) tests of wells in the Raft River KGRA for the production of reliable interference data.

TP

Figure 4 graphs RRGE-1 and RRGP-5B wellhead pressure during the RRGP-4AB production test. It is believed that the production of RRGP-4AB at 0.95 lps for 18 hours ~~would~~ did not affect either well. ~~No effect is apparent on Figure 4.~~ RRGE-1 and RRGP-5B are presumed, from geologic inference, to penetrate the same geologic structure and perhaps the same or similar aquifers. If this is the case, why the differing graphs of wellhead pressure? RRGE-1 was specified to artesian flow at a constant (±3%) rate; RRGP-5B had been shut-in since the RRGP-5B 72-hour test, November 1-7, 1978. The inconsistent RRGE-1 data suggests that the discharge rate from RRGE-1 is not maintained constant.

NO TP

Figure 2, a graph of RRGE-1 wellhead pressure, was constructed to investigate the possibility that the inconsistency in data was related to a natural phenomenon, such as earth tides or the barometric efficiency of the aquifer(s) penetrated. Wellhead pressures occurring at the same time on consecutive days were connected and scrutinized for temporal trends. No temporal trends are apparent on Figure 2, which suggests that RRGE-1 discharge is not maintained constant.

It is evident from graphs of 1) RRGE-1 wellhead pressure versus the logarithm of RRGP-4AB production time (Figure 3) and 2) the logarithm of RRGE-1 wellhead pressure decline since RRGP-4AB production was initiated versus the logarithm of RRGP-4AB production time (Figure 4) that RRGE-1 discharge is not maintained constant. The data on Figure 3 and 4 would form a trend related to the physical phenomenon affecting the aquifer(s) penetrated, if discharge had been maintained constant.

It is essential that RRGE-1 discharge be maintained constant, if well interference data suitable for quantitative analysis are to be produced by future tests. Reliable interference data are vital to predicting aquifer and well performance over the life of the Raft River Project.